



Pinelands Alternate Design Wastewater Treatment Systems Pilot Program

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Background

In an effort to better protect water resources, the Pinelands Commission launched the Alternate Design Treatment Systems Pilot Program in August 2002. The program significantly reduces water pollution by enabling Pinelands Area residents to use high-performance septic systems that pretreat wastewater before it is discharged to Pinelands aquifers that supply water to area wells, streams and rivers.

The pilot program is the product of a two-year effort that involved the formation of an Ad Hoc Committee on Alternative Septic Systems. The Committee was composed of members of the Pinelands Commission, the Pinelands Municipal Council, the Pinelands Preservation Alliance and the New Jersey Builders Association. It was tasked with identifying advanced onsite wastewater treatment technologies that are capable of removing appreciable amounts of nitrogen from domestic wastewater. The Committee received assistance from the New Jersey Department of Environmental Protection (NJDEP), professional engineering consultants, university researchers and other state and national experts.

The Committee identified high-performance septic systems that are capable of removing more than 65% of total nitrogen from domestic wastewater. And, through the use of these systems, residential development can meet the Commission's two-milligrams-per-liter nitrogen water quality standard on lots smaller than 3.2 acres (down to a minimum of 1 acre).

The pilot program regulations are incorporated in subchapter 10 of the [Pinelands Comprehensive Management Plan](#) (CMP). Initially, five advanced treatment technologies were authorized to participate in the pilot program. In 2011, the Commission expanded the pilot program by adding four new onsite wastewater treatment technologies. All four technologies have been certified by the U.S. Environmental Protection Agency (USEPA) and National Sanitation Foundation (NSF).

In 2010, two of the original technologies (Amphidrome and Bioclere) were granted permanent approval status after successfully demonstrating their nitrogen removal capabilities. The Ashco RSF III and Cromaglass technologies were removed from the pilot program due to an inability to supply systems to the Pinelands Area (Ashco) and an inability to meet Pinelands water quality standards (Cromaglass). The fifth of the original systems, called FAST, is meeting Pinelands water quality standards when used on lots that are a minimum of 1.5 acres in size. As a result, staff has recommended a CMP amendment to grant permanent approval status to the FAST system at the minimum 1.5 acre threshold.

The four new NSF/USEPA certified technologies are the Bio-Barrier, Busse GT, Hoot ANR and SeptiTech wastewater treatment systems. Based on NSF and USEPA testing, these systems are capable of meeting Pinelands water quality standards on minimum one-acre lots.

Each of the high performance septic systems use microbiological treatment processes to remove total nitrogen from wastewater, employing the same physical and biological treatment methods that

are used in large scale wastewater treatment plants. Removing excess nitrogen from wastewater prevents eutrophic conditions from developing in surface water bodies and also prevents the proliferation of invasive plant species in aquatic and wetland habitats. Moreover, these systems can protect shallow aquifers used for drinking water from developing excess levels of nitrate-nitrogen, which can cause methemoglobinemia or “Blue Baby Disease” in infants.

Pinelands Pilot Program and NJDEP Advanced Pretreatment Device Requirements

- As with all septic systems in New Jersey, engineering plans for Pinelands alternate design wastewater treatment systems must be prepared by a New Jersey licensed professional engineer. (see NJDEP @ N.J.A.C 7:9A-7.1(a));
- Design engineers must certify that they possess sufficient knowledge of the technology to design systems in a manner that meets the system manufacturer’s minimum specifications and recommendations. (see NJDEP @ N.J.A.C 7:9A-8.3(b));
- All systems must be installed under the direct supervision of an individual who meets NJDEP’s requirements for an “authorized installer.” The authorized installer must be physically present at all times during the installation of a Pinelands alternate design wastewater treatment system. (see NJDEP @ N.J.A.C 7:9A-8.3(c));
- Upon installation, the system manufacturer and a New Jersey licensed professional engineer must certify to the Commission and the local board of health that the system has been properly constructed and must provide as-built drawings of the system to the Pinelands Commission and the local board of health. (see Pinelands Commission @N.J.A.C 7:50-10.22(a)6v and NJDEP @ N.J.A.C 7:9A-3.13(a));
- All pilot program systems must be covered under a five-year parts and labor warranty to ensure that all necessary repairs are covered during the warranty period without additional cost to homeowners. (see Pinelands Commission @ N.J.A.C 7:50-10.22(a)6viii);
- For five years from the time of purchase, all pilot program systems must be covered under a pre-paid, renewable, non-cancelable five year operation and maintenance contract. Pinelands rules require a minimum of one service call annually. NJDEP rules require that the system be inspected by an individual who meets NJDEP’s “authorized service provider” requirements once within 30 days of startup, twice per year during the first two years of operation and once per year thereafter. (see Pinelands Commission @N.J.A.C 7:50-10.22(a)6viii and NJDEP @ N.J.A.C 7:9A-12.3(e)2);
- All Pinelands alternate design wastewater treatment systems must be equipped with alarm dialing capability and must be covered under a service contract with an authorized service provider for the life of the system. (see Pinelands Commission @ N.J.A.C 7:50-6.85(b) and NJDEP @ N.J.A.C 7:9A-12.3(a) and N.J.A.C 7:9A-8.3(b)6);
- Treatment system vendors must ensure that samples of treated wastewater are collected and analyzed during the initial three years of system operation to determine each system’s nitrogen removal efficiency. Testing is performed by NJDEP certified laboratories and lab results are provided to the Pinelands Commission. The Amphidrome and Bioclere systems are no longer subject to this effluent testing requirement. (Pinelands Commission @ N.J.A.C 7:50-10.22(a)6iv);
- The owner of a Pinelands alternate design system must record a notice with the deed to the property that identifies the treatment system technology that is being used. The owner also

must acknowledge their responsibility to operate and maintain the system in conformance with the manufacturer's and the Pinelands Commission's requirements, and they must grant access to the property to allow for system monitoring.

For more information on the Alternate Design Wastewater Treatment Systems Pilot Program, visit the Pinelands Commission's website at <http://www.nj.gov/pinelands/landuse/waste/assp/> or email wastewater@njpines.state.nj.us. For a copy of the New Jersey Department of Environmental Protection's rules related to advanced wastewater pretreatment devices, visit the NJDEP's website at <http://www.state.nj.us/dep/dwq/pdf/njac79a.pdf>.